AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in a textile ply, ~~characterised by being composed of~~ comprising:

   a. ~~Sub-system~~ a sub-system of image acquisition ~~(2)~~ containing ~~the~~ modules of lighting[[,]] and artificial vision and respective support, fixing, conditioning and adjustment ~~(3)~~ elements for the modules;
   b. ~~Quality~~ a quality control computer program comprised of the following modules:
   c. ~~Morphological~~ morphological analysis of an image for ~~the~~ detection and recognition of ~~the~~ overlapping of the textile ply, and detection and counting of threads or cords in the overlap area;
   d. ~~Support~~ support to ~~the~~ a decision making process of acceptance/rejection of the ply based on ~~the~~ parameters defined by ~~the~~ a user; and
   e. ~~Interconnection~~ interconnection with production equipment.

2. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim 1, ~~characterised by~~ wherein the lighting module ~~being comprised of~~ includes:

   a. [[A]] a source of light ~~(7)~~, coherent or incoherent;
   b. [[A]] a casing to hinder ~~the~~ entrance of ambient light; and
   c. [[A]] a background surface ~~(10)~~ to originate an adequate contrast for the functions of identifying the overlapping region and counting of cords.

3. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according

to claim 1, ~~characterised by the fact that~~ wherein the lighting module has a uniform source of light or radiation.

4. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim 1, ~~characterised by the fact that~~ wherein the lighting module is constituted by a fixed or a sweeping beam.

5. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim 1, ~~characterised by the fact that~~ wherein the lighting module is of collimated light.

6. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim 1, ~~characterised by the fact that~~ wherein the lighting module is of structured light.

7. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim 1, ~~characterised by the fact that~~ wherein the lighting module is of visible, infra-red or ultra-violet light.

8. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim 1, ~~characterised by the fact that~~ wherein the lighting module is of stroboscopic light.

9. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim 1, ~~characterised by the fact that~~ wherein the lighting module is of polarised light.

10. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim 1, ~~characterised by the fact that~~ wherein the lighting module is comprised of incandescent lamps, fluorescent lamps, halogen lamps, lasers in solid state, gaseous lasers, laser diodes or light emitting diodes (LED).

11. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim 1, ~~characterised by the fact that~~ wherein the lighting module has one or more sources of light or radiation positioned frontally to the textile ply or at an angle between -90° and +90°.

12. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim [[1]] 2, ~~characterised by the fact that~~ wherein the casing that hinders the entrance of ambient light has a set of partitions ~~(6)~~ duly positioned to diminish the reflection of light lost in ~~the~~ walls of the ~~referred~~ casing.

13. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim [[1]] 2, ~~characterised by the fact that~~ wherein the casing that hinders the entrance of ambient light has diaphragms for the interception of incandescence.

14. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim [[1]] 2, ~~characterised by the fact that~~ wherein the casing that hinders the entrance of ambient light has, in ~~the~~ a ply

circulation slot, an external light barrier in the form of curtains or bristle bars ~~or any other similar material~~.

15. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim [[1]] 2, ~~characterised by the fact that~~ wherein the background surface ~~(10)~~ is inclined at an appropriate angle, depending on the visual field of the ~~referred~~ artificial vision module ~~camera~~, to diminish ~~the~~ retro-reflection of the ~~referred~~ background surface onto the ~~mentioned camera~~ artificial vision module.

16. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim 1, ~~characterised for having~~ including a device for ~~the~~ detection of the thickness of the textile ply~~, either mechanic, electronic, optoelectric or another type,~~ which enables ~~to synchronise~~ synchronizing the ~~release of the shutters of the video cameras~~ artificial vision module with ~~the~~ passage of the overlapping splice region.

17. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim [[1]] 2, ~~characterised by the fact that~~ wherein the background surface has on ~~the~~ an inner surface in the area of ~~the~~ a ply circulation slot one or more marks that limit the observation area facilitating its identification by the computerized morphologic analysis program.

18. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according

to claim 1, ~~characterised by the fact that~~ wherein the module of artificial vision has a video camera or cameras ~~(8)~~ of the type CCD~~, with the following characteristics:~~

~~a. interline transfer, frame, complete frame or other architecture;~~

~~b. arrangement of points with in line or on area sweeping;~~

~~c. spectrum of sensibility to one colour or to various colours in the visible, in the infra-red or ultra-violet spectrum~~.

19. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim 1, ~~characterised by the fact that the~~ wherein the module of artificial vision has a camera or cameras that function in synchrony with the lighting system of stroboscopic light.

20. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim 1, ~~characterised by the fact that~~ wherein the module of artificial vision has a camera or cameras with polarising filters.

21. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim 1, ~~characterised by the fact that the support, fixation and adjustment element of the image acquisition module is comprised of a mechanical assembly of an worm-screw or other, manually activated or by an motor (9) controlled by the operator, or automatically~~ wherein the assembly of the sub-system of acquisition image is formed of a mechanical assembly.

22. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim 1, ~~characterised by the fact that~~ wherein the quality control computer program has a morphological module of image analysis that enables the:

a. ~~Detection~~ detection and recognition of the overlapping of the textile ply;
b. ~~Detection~~ detection and counting of cords in the overlap area; and
c. ~~Adjustment~~ adjustment of detection in view of the colours and dimension of the ply[[,]] and of the cords ~~and of the rubber, by the operator or automatically~~.

23. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim 1, ~~characterised by the fact that~~ wherein the quality control program has a decision module of acceptance/rejection of the ~~ply that enables the user to define the parameters and criteria, as for example, the maximum and minimum number of faults or patterns of the ply batches with certain sequences of faults~~.

24. (Currently Amended) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim 1, ~~characterised by the fact that~~ wherein the quality control program has an interface module with the ~~remaining~~ production equipment ~~that enables the interface with a programmable logic controller, PLC~~.

25. (Currently Amended) ~~Utilisation~~ A method for ~~of the~~ automatically controlling and monitoring ~~system for~~ overlapping splice tolerance in a textile ply ~~according to claim 1,~~ comprising

the steps of: providing a textile ply that is for use in a production of a tire and ~~in the tyre production industry~~ detecting the number of existent cords on the textile ply splices using a system that includes (a) a sub-system of image acquisition containing a lighting module and artificial module and respective support, fixing, conditioning and adjustment elements for the modules; (b) a quality control computer program that includes the following modules: (c) morphological analysis of an image for detection and recognition of overlapping of the textile ply and detection and counting of threads or cords in the overlap area; (d) support to a decision making process of acceptance/rejection of the ply based on parameters defined by a user; and (e) interconnection with product equipment.

26. (New) An automatic control and monitoring system for splice overlapping tolerance in the textile ply according to claim 1, wherein the sub-system of image acquisition further comprises a ply circulation slot.